

Glossary

hp StorageWorks Directors and Edge Switches

Second Edition (July 2004)

Part Number: AA-RU5JB-TE/623-000005-001

This glossary defines terms used in manuals that support HP StorageWorks Directors and Edge Switches.



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Directors and Edge Switches Glossary
Second Edition (July 2004)
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Glossary

This glossary defines terms used in manuals that support the following HP StorageWorks storage area network (SAN) products:

- Director 2/64
- Director 2/140
- Edge Switch 2/12
- Edge Switch 2/16
- Edge Switch 2/24
- Edge Switch 2/32

The glossary includes terms that relate specifically to the supported products. It does not include many terms that are generally well-known in the SAN industry.

10BaseT

An implementation of the IEEE Ethernet standard for 24-gauge unshielded twisted-pair wiring, using a baseband transmission rate of ten Mbps.

100BaseT

An implementation of the IEEE Ethernet standard for 24-gauge unshielded twisted-pair wiring, using a baseband transmission rate of 100 Mbps.

access control

Method of control (with associated permissions) by which a set of devices can access other devices across a network. *See also* [persistent binding](#) and [zoning](#).

active configuration

In S/390 mode, the director or switch configuration that is determined by the status of the connectivity attributes.

active FBML

The active fabric binding membership list. When fabric binding is active, the list of fabric members with which the product is allowed to communicate. *See* [fabric binding](#) and [fabric binding membership list](#).

active FRU

A redundant field-replaceable unit that is currently operating as the active and not the backup FRU. *See also* [backup FRU](#).

active port address matrix

In S/390 mode, an active port address matrix is the port address matrix that is currently active or operational on an attached director or switch. *See also* [connectivity capability](#).

active zone set

Single zone set that is active in a multiswitch fabric. It is created when you enable a specified zone set. This zone set is compiled by checking for undefined zones or aliases.

address name

See [port name](#).

agent

Software that processes queries on behalf of an application and returns replies.

alarm

Simple network management protocol (SNMP) message notifying an operator of a network or device problem.

allowed connection

In S/390 mode in a director or switch, the attribute that, when set, establishes dynamic connectivity capability. *See also* [blocked connection](#), [connectivity attribute](#), [dynamic connectivity](#).

alias server

Fabric software facility that supports multicast group management.

allowed port connection

In S/390 mode, this attribute establishes dynamic connectivity capability.

American National Standard Code for Information Interchange

ASCII. A standard character set consisting of 7-bit coded characters (8-bit including parity check) used for information exchange between systems and equipment.

American National Standards Institute

ANSI. A national organization consisting of producers, consumers, and general interest groups that establishes procedures by which accredited organizations create and maintain industry standards in the United States

application program interface

API. A set of programming functions and routines that provides access between protocol layers, such as between an application and network services.

application-specific integrated circuit

ASIC. An asynchronous transfer mode (ATM) local area network/ wide area network (LAN/WAN) circuit using cell relay transport technology. ASICs are designed for a specific application or purpose, such as implementing the lower-layer Fibre Channel protocol (FC-0). They are particularly suited to sending video and audio information, as well as text. ASICs differ from general-purpose devices such as memory chips or microprocessors.

area

The second byte of the node port (N_Port) identifier.

arbitrated loop

One of the three connection topologies offered by Fibre Channel protocol. Up to 126 node ports and one fabric port can communicate without the need for a separate switched fabric.

arbitrated loop physical address

(AL_PA) — A 1-byte value used in the arbitrated loop topology that identifies loop ports (L_Ports). This value then becomes the last byte of the address identified for each public L_Port on the loop.

arbitration

Process of choosing one device from a collection of devices that request service simultaneously.

attribute

In S/390 mode, the connection status of the address on a configuration matrix: allowed, blocked, or prohibited.

audit log

Log summarizing actions (audit trail) made by the user.

authentication

Verification of identity for a person or process.

backbone

Cable on which two or more stations or networks may be attached, typically used to link computer networks at one site with those at another. Smaller branch networks are sometimes called ribs.

backplane

The backplane provides 48 VDC power distribution and connections for all logic cards.

backup FRU

When an active field-replaceable unit (FRU) fails, an identical backup FRU takes over operation automatically (failover) to maintain director and Fibre Channel link operation. *See also* [active FRU](#).

bandwidth

(1) The difference (expressed in Hertz) between the highest and lowest frequencies in a range of frequencies. (2) The data transfer rate of a network or electronic communication system.

BB_Credit

See [buffer-to-buffer credit](#).

beaconing

Use of light-emitting diodes on ports, port cards, field-replaceable units, and directors to aid in the fault-isolation process. When enabled, active beaconing causes LEDs to flash for selected components.

BER

See [bit error rate](#).

bezel

A removable panel that covers empty drive bays and port cards.

bidirectional

In Fibre Channel, the capability to simultaneously communicate at maximum speeds (100 Mbps) in both directions over a link.

bit error rate

(BER) — Ratio of received bits that contain errors to total of all bits transmitted.

blocked connection

In S/390 mode, in a director or switch, the attribute that, when set, removes the communication capability of a specific port. A blocked address is disabled so that no other address can be connected to it. A blocked attribute supersedes a dedicated or prohibited attribute on the same address. See also [allowed connection](#), [connectivity attribute](#), [dynamic connection](#), and [dynamic connectivity](#).

blocked port

Devices communicating with the port are prevented from logging into the director or communicating with other devices attached to the director. A blocked port continuously transmits the offline sequence.

B_Port

See [bridge port](#).

bridge

Device that connects and passes packets between two network segments that use the same communications protocol.

bridge port

(B_Port) — (1) In Fibre Channel protocol, a fabric inter-element port used to connect bridge devices with E_Ports on a switch. B_Ports provide a subset of E_Port functionality. (2) A term for a physical interface between the fabric (switch) and a bridge device. The interface is identical to an expansion port (E_Port), but it does not participate in full expansion port protocols. As such, it does not assign domain IDs or participate in routing protocol. See also [expansion port](#), [fabric port](#), [generic port](#), [node port](#), and [segmented E_Port](#).

broadcast

Send a transmission to all node ports (N_Ports) on a fabric. *See also* [broadcast frame](#) and [multicast](#).

broadcast frame

Data packet, also known as a broadcast packet, whose destination address specifies all computers on a network. *See also* [broadcast](#) and [multicast](#).

buffer

Storage area for data in transit. Buffers compensate for differences in processing speeds between devices. *See also* [buffer-to-buffer credit](#)

buffer-to-buffer credit

(BB_Credit) — The maximum number of frames a port can transmit without receiving a receive ready signal from the receiving device.

bypassed port

If a port is bypassed, all serial channel signals route past the port. A device attached to the port cannot communicate with other devices in the loop.

cascade

Linking two or more Fibre Channel switches to form a larger switch or fabric. The switched link through fiber cables attached between one or more expansion ports (E_Ports). *See also* [expansion port](#).

call-home

Product feature that requires installation of HP Proactive Service software and enables the HAFM server to automatically transmit system events (failure information) to an HP customer support center. The HP support center server accepts calls from the HAFM server, logs reported events, and can notify one or more support center representatives.

cell

In S/390 mode, in a port address matrix, a cell is the intersection point between a horizontal port address and a vertical port address. A selected cell is indicated by the cell cursor.

chained

Two directors or switches that are physically attached.

channel

Point-to-point link that transports data from one point to the other.

channel-attached

(1) Pertaining to direct attachment of devices by data I/O channels to a computer. (2) Pertaining to devices attached to a control unit by cables, not telecommunication lines.

channel path

A single interface between a central processor and one or more control units along which signals and data can be sent to perform I/O requests.

channel path identifier

(CHPID) — In a channel subsystem, a value assigned to each installed channel path of the system that uniquely identifies that path to the system.

channel-to-channel

CTC. A channel attached to another channel (channel-to-channel) and specifies the I/O mode of operation for the channel path under the I/O configuration program (IOCP) channel path identifier (CHPID) statement 'Type' parameter. *See also* [channel path identifier](#).

channel wrap test

A diagnostic procedure that checks S/390 host-to-director connectivity by returning the output of the host as input. The test is host-initiated, and transmits Fibre Channel frames to a director port. A director port enabled for channel wrapping echoes the frame back to the host.

CHPID

See [channel path identifier](#).

Class 2 Fibre Channel service

Provides a connectionless (not dedicated) service with notification of delivery or nondelivery between two N_Ports. In-order delivery of frames is not guaranteed.

Class 3 Fibre Channel service

Provides a connectionless (not dedicated) service without notification of delivery or nondelivery between two N_Ports. Also known as datagram.

Class F Fibre Channel service

Used by switches to communicate across interswitch links (ISLs) to configure, control, and coordinate a multswitch fabric.

class of Fibre Channel service

Defines the level of connection dedication, acknowledgment, and other characteristics of a connection. Class 2, Class 3, and Class F services are supported.

client/server computing

Architectural model that functionally divides that execution of a unit of work between activities initiated by an end user or program (client) and those maintaining data (servers). Originally thought to make mainframes obsolete.

cluster

A group of processors interconnected by a high-speed network (typically dedicated) for increased reliability and scalability. Clusters are groupings of multiple servers in which information is shared among systems. When a server in a cluster fails, one of the other servers in the cluster assumes the responsibility of the failed server, thereby ensuring server, application, and data availability.

community name (SNMP)

A name that represents a simple network management protocol (SNMP) community that the agent software recognizes as a valid source for SNMP requests. A product recognizes a management station as a valid recipient for trap information when the station's community names are configured.

community profile

Information that specifies which management objects are available to what management domain or SNMP community name.

concurrent firmware upgrade

Firmware is upgraded without disrupting switch operation.

concurrent maintenance

Ability to perform maintenance tasks, such as removal or replacement of field-replaceable units (FRUs), while normal operations continue without interruption. *See also* [nondisruptive maintenance](#).

configuration data

Configuration data includes identification data, port configuration data, operating parameters, SNMP configuration, and zoning configuration. A configuration backup file is required to restore configuration data if the control processor (CTP) card in a nonredundant director is removed and replaced.

connectionless

Nondedicated link. Typically used to describe a link between nodes that allows the switch to forward Class 2 or Class 3 frames as resources (ports) allow. Contrast this type of link to the dedicated bandwidth that is required in a Class 1 Fibre Channel Service point-to-point link.

connectivity attribute

In S/390 mode, the characteristic that determines port address status for the director or switch. *See also* [allowed connection](#), [blocked connection](#), [connectivity capability](#), [connectivity control](#), [dynamic connection](#), [dynamic connectivity](#), and [unblocked connection](#).

connectivity capability

(1) The capability that allows attachment of a device to a system without requiring physical reconfiguration of either the device or the interconnections. (2) The director or switch capability that allows logical manipulation of link connections to provide physical device attachment. *See also* [active port address matrix](#), [connectivity attribute](#), and [connectivity control](#).

connectivity control

In S/390 mode, in a director or switch, the method used to change port address connectivity attributes and determine the communication capability of the link attached to the port. *See also* [active port address matrix](#), [connectivity attribute](#), and [connectivity control](#).

connector

See [optical fiber connector](#).

control processor card

(CTP card) — Circuit card that contains the director microprocessor. The CTP card also initializes hardware components of the system after power-on. A 10 Mbps RJ-45 twisted pair connector is located on the CTP card to connect to an Ethernet LAN and communicate with the HAFM server or a specific management station.

control unit

A device that controls the reading, writing, or displaying of data at one or more input/output units.

control unit port

An internal director port on the CTP card that communicates with the attached IBM S/390 or similar processor channels to report error conditions and link initialization.

CRC

See [cyclic redundancy check](#).

CTP card

See [control processor card](#).

CUP

See [control unit port](#).

cyclic redundancy check

(CRC) — System of error checking performed at both the sending and receiving station using the value of a particular character generated by a cyclic algorithm. When the values generated at each station are identical, data integrity is confirmed.

DASD

Direct access storage device, such as a disk drive.

datagram

See [Class 3 Fibre Channel service](#).

data directory

Directory that contains critical information for all managed products (including directors and switches). Information stored here includes:

- All configuration data
- All log files
- Call-home settings
- Firmware library
- Zoning library

default

Pertaining to an attribute, value, or option that is assumed when none is explicitly specified.

default zone

Contains all attached devices that are not members of a separate zone.

destination identifier

Address identifier that indicates the targeted destination of a data frame.

device

Product (server or storage), connected to a managed director, that is not controlled directly by the *Element Manager* application. *See also* [node](#).

diagnostics

Procedures used by computer users and service personnel to diagnose hardware or software error conditions.

dialog box

Dialog box is a window containing informational messages or data fields to be modified or filled in with desired options.

D_ID

See [destination identifier](#).

director

An intelligent Fibre Channel switching device providing any-to-any port connectivity between nodes (end devices) on a switched fabric. The director sends data transmissions (data frames) between nodes in accordance with the address information present in the frame headers of those transmissions.

direct access storage device

DASD. (1) Generic classification for a storage peripheral that can respond directly to random requests for information. Usually refers to a disk drive. (2) A storage device that provides direct access to data, and in which access time is independent of data location.

direct current director

An intelligent, highly-available, Fibre Channel switch providing any-to-any port connectivity between nodes (end devices) on a switched fabric. The director sends data transmissions (data frames) between nodes in accordance with the address information present in the frame headers of those transmissions.

DNS name

Domain name system (or domain name service). Host or node name for a device or managed product that is translated to an internet protocol (IP) address through a domain name server.

DNS server

For Internet and TCP/IP applications, a DNS server supplies name-to-address translation by mapping domain names to Internet addresses.

domain

A Fibre Channel term describing the most significant byte in the node port (N_Port) identifier for the Fibre Channel device. It is not used in the Fibre Channel small computer system interface (FC-SCSI) hardware path ID. It is required to be the same for all SCSI targets logically connected to a Fibre Channel adapter.

domain ID

Number (1 through 31) that uniquely identifies a switch in a multiswitch fabric. A distinct domain ID is automatically allocated to each switch in the fabric by the principal switch.

domain name service

See [DNS name](#).

dynamic connection

A connection between two ports, established or removed by the directors and, when active, displays as one continuous link. See also [connectivity attribute](#), [blocked connection](#), [connectivity capability](#), [dynamic connection](#), [dynamic connectivity](#), and [unblocked connection](#).

dynamic connectivity

The capability that allows connections to be established and removed at any time.

dynamic random access memory

DRAM. Random access memory that resides in a cell comprised of a capacitor and transistor. DRAM data deteriorates (that is, is dynamic) unless the capacitor is periodically recharged by the controlling microprocessor. DRAM is slow, but relatively inexpensive. *Contrast with* [static random access memory](#).

E_D_TOV

See [error-detect time-out value](#).

electronic data interchange

EDI. The electronic transfer of preformatted business documents, such as purchase orders and bills of lading, between trading partners.

Electronic Industries Association

EIA. The governing body that publishes recommended standards for physical devices and associated interfaces. For example, RS-232 is the EIA standard that defines computer serial port connectivity.

Embedded Web Server

(EWS) — Web-based interface that allows administrators or operators with a browser-capable PC and Internet connection to monitor and manage a director. The interface provides a GUI similar to the *Element Manager* application and supports director configuration, statistics monitoring, and basic operation.

enhanced availability feature

EAF. A backup field-replaceable unit (backup FRU) that is ordered and installed to provide redundancy and reduce disruption in case of failure.

Enterprise Systems Architecture

ESA™. A computer architecture introduced by IBM in 1988 as ESA/370. The architecture added access registers to improve virtual memory management and increase storage from 2 gigabyte to 6 terabytes. The architecture was enhanced with the introduction of ESA/390 in 1990.

Enterprise Systems Connection

ESCON™. An IBM architecture, technology, and set of products and services introduced in 1990 that provides a dynamically connected environment using fiber-optic cables as the data transmission medium.

Enterprise Systems Connection Director

ESCON™ Director. A device that provides connectivity capability and control for attaching any two links to each other through the ESCON channel. Specifically, any of the hardware devices provided for interconnecting IBM-compatible mainframe equipment through the proprietary ESCON channel connection. IBM's model numbers for ESCON directors include the 9031 and 9033.

E_Port

See [expansion port](#).

error-detect time-out value

(E_D_TOV) — User-specified value that defines the time a director or switch waits for an expected response before declaring an error condition.

error message

Software message that indicates an error was detected. *See also* [information message](#) and [warning message](#).

Ethernet

A widely implemented local area network (LAN) protocol that uses a bus or star topology and serves as the basis for the IEEE 802.3 standard, which specifies the physical and software layers. Baseband LAN allows multiple station access to the transmission medium at will without prior coordination and which avoids or resolves contention.

Ethernet hub

A customer-supplied device used to LAN-connect the HAFM server and the directors it manages.

event code

A three-digit numeric code that displays in the event log and identifies a specific event that occurred. This code provides information on system failures, such as hardware failures; failure locations; or general information on normal system events.

event log

Record of significant events that have occurred at the director or switch or through the *HAFM Management Services* application, such as FRU failures, degraded operation, and port problems.

EWS

(EWS) — Web-based interface that allows administrators or operators with a browser-capable PC and Internet connection to monitor and manage a director. The interface provides a GUI similar to the *Element Manager* application and supports director configuration, statistics monitoring, and basic operation.

EWS interface timeout

If the embedded web server interface is running but no user activity occurs, (such as viewing different pages, refreshing, or reconfiguring information), the application times out after 30 minutes. The user must log in again. A login dialog box displays if the user attempts to access any pages after the timeout has occurred.

EWS interface window

The window for the embedded web server interface. The window is divided into two separate panels: the navigation panel on the left, and the main panel on the right.

exchange

A term that refers to one of the Fibre Channel protocol “building blocks,” composed of one or more nonconcurrent sequences.

expansion port

(E_Port) — Physical interface on a Fibre Channel switch within a fabric that attaches to an expansion port (E_Port) on another Fibre Channel switch to form a multiswitch fabric. *See also* [segmented E_Port](#).

explicit fabric login

Data field size, supported by an F_Port, that is agreed upon during fabric login.

extended distance feature

XDF. A means to extend the propagation distance of a fiber-optic signal.

fabric

Fibre Channel entity that interconnects node ports (N_Ports) and is capable of routing (switching) Fibre Channel frames using the destination ID information in the Fibre Channel frame header accompanying the frames.

fabric address notification

(FAN) — A message that informs all NL_Ports of the address of the FL_Port. Allows LIP processing to not be disruptive to FC traffic on devices that support FAN. *See also* [loop initialization primitive](#).

fabric binding

A feature that enables a switch or director to communicate only with fabrics that are included in the fabric binding membership list (FBML). Fabric Binding is available only if the SANtegrity Binding feature is installed.

fabric binding membership list

A list of fabric members used in fabric binding. *See* [active FBML](#).

fabric element

An active switch, director, or node in a Fibre Channel switched fabric.

fabric login

The process by which node ports (N_Ports) establish their operating parameters. During fabric login, the presence or absence of a fabric is determined and paths to other N_Ports are mapped. Specific operating characteristics for each port, such as buffer-to-buffer credit (BB_Credit) and data frame size, are also established.

fabric loop port

FL_Port. A fabric port (F_Port) that contains arbitrated loop (AL) functions associated with the Fibre Channel arbitrated loop (FC-AL) topology. The access point of the fabric for physically connecting an arbitrated loop of node loop ports (NL_Ports). *See also* [bridge port](#); [expansion port](#); [fabric port](#); [generic port](#); [hub port](#); [node loop port](#); [node port](#); [segmented E_Port](#).

fabric port

(F_Port) — Physical interface within the fabric that connects to an N_Port through a point-to-point full duplex connection.

fabric services

The services that implement the various Fibre Channel protocol services, which are described in the standards. These services include the fabric controller (login server), name server, and management server.

fabric switch

A highly-available Fibre Channel switch with a low port count that provides any-to-any port connectivity between devices (nodes) connected to a switched fabric. A fabric switch transmits data frames between nodes in accordance with the address information provided in the associated frame headers. Fabric switches are well suited for use in workgroup or departmental computing environments. *Contrast with* [director](#).

failover

Automatic and nondisruptive transition of functions from an active FRU that has failed to a backup FRU.

FAN

See [fabric address notification](#).

FC-0

The Fibre Channel layer that describes the physical link between two ports, including the transmission media, transmitter and receiver circuitry, and interfaces. This consists of a pair of either optical fiber or electrical cables (link media) along with transceiver circuitry which work together to convert a stream of bits at one end of the link to a stream of bits at the other end.

FC-1

Middle layer of the Fibre Channel physical and signaling interface (FC-PH) standard, defining the 8B/10B encoding/decoding and transmission protocol.

FC-2

The Fibre Channel layer that specifies the signaling protocol, rules, and mechanisms required to transfer data blocks. The FC-2 layer is very complex and provides different classes of service, packetization, sequencing, error detection, segmentation, and reassembly of transmitted data.

FC-3

The Fibre Channel layer that provides a set of services common across multiple node ports (N_Ports) of a Fibre Channel node. The services are not commonly used and are essentially reserved for Fibre Channel architecture expansion.

FC-4

The Fibre Channel layer that provides mapping of Fibre Channel capabilities to upper level protocols (ULP), including Internet protocol (IP) and small computer system interface (SCSI).

FC-AL

Acronym for *Fibre Channel arbitrated loop*. Synonymous with [arbitrated loop](#).

FCC-IOC

See [Fibre Channel input/output controller](#).

FC-PH

See [Fibre Channel physical and signaling interface](#).

feature enablement key

After purchasing a an additional product feature, HP provides a unique feature enablement key to the customer. A feature key is a case-sensitive alphanumeric string consisting of dashes, uppercase characters, and lowercase characters.

feature key

A unique key that allows additional product features to be enabled. This key is entered into the Configure Feature Key dialog box in the *Element Manager* application to activate optional hardware and software features. Upon purchasing a new feature, customers will receive the associated feature key.

fiber

Physical media types supported by the Fibre Channel specification, such as optical fiber, copper twisted pair, and coaxial cable.

Fibre Channel

Integrated set of standards recognized by the American national Standards Institute (ANSI), which defines specific protocols for flexible information transfer. Logically, a point-to-point serial data channel, structured for high performance.

Fibre Channel address

A 3-byte node port (N_Port) identifier which is unique within the address domain of a fabric. Each port may choose its own identifier, or the identifier may be assigned automatically during fabric login.

Fibre Channel arbitrated loop

FC-AL. A high-speed (100 Mbps) connection which is a true loop technology where ports use arbitration to establish a point-to-point circuit. Data can be transferred in both directions simultaneously, achieving a nominal transfer rate between two devices of 200 Mbps.

Fibre Channel Association

FCA. The FCA is a non-profit corporation consisting of over 150 members throughout the world. Its mission is to nurture and help develop the broadest market for Fibre Channel products through market development, education, standards monitoring, and fostering interoperability among members' products.

Fibre Channel fabric element

Any device linked to a fabric. Information about these devices is recorded in a management information base (MIB), which can be accessed by fabric management software.

Fibre Channel fabric element management information base

FCFE-MIB. A table of variables available to network management stations and resident on a switch or director. Through the simple network management protocol (SNMP) these pointers can be manipulated to monitor, control, and configure the switch or director.

Fibre Channel Industry Association

FCIA. A corporation consisting of over 100 computer industry-related companies. Its goal is to provide marketing support, exhibits, and tradeshow for its member companies. The FCIA complements activities of the various standards committees.

Fibre Channel input/output controller

(FCC-IOC) — A device that controls the embedded Fibre Channel port and configures the port's ASICs.

Fibre Channel IP address

FC IP. The default FC IP on a new switch is a temporary number divided by the switch's World Wide Name (WWN). The system administrator needs to enter a valid IP address.

Fibre Channel management framework integration

FCMGMT. A standard defined by the Fibre Alliance to provide easy management for Fibre Channel-based devices such as switches, hubs, and host-bus adapters.

Fibre Channel physical and signaling interface

FC-PH. The American National Standards Institute (ANSI) document that specifies the FC-0 (physical signaling), FC-1 (data encoding), and FC-2 (frame construct) layers of the Fibre Channel protocol.

Fibre Channel standard

American National Standards Institute (ANSI) standard that provides a common, efficient data transport system that supports multiple protocols. The architecture integrates both channel and network technologies, and provides active, intelligent interconnection among devices. All data transmission is isolated from the control protocol, allowing use of point-to-point, arbitrated loop, or switched fabric topologies to meet the needs of an application.

Fibre Connection

FICON. An IBM set of products and services introduced in 1999 that is based on the Fibre Channel Standard. FICON technology uses fiber-optic cables as the data transmission medium, and significantly improves I/O performance (including one Gbps bi-directional data transfer). FICON is designed to coexist with ESCON™ channels, and FICON-to-ESCON control unit connections are supported.

fiber optics

Branch of optical technology concerned with the transmission of light pulses through fibers made of transparent materials such as glass, fused silica, and plastic.

fiber port module card

A 1 gigabit per second module that contains four generic ports (G_Ports). Each fiber module card provides connections through duplex small form factor pluggable (SFP) fiber optic transceivers.

FICON

An IBM set of products and services introduced in 1999 that is based on the Fibre Channel Standard. FICON technology uses fiber optic cables as the data transmission medium and significantly improves I/O performance (including 1 Gbps bidirectional data transfer).

FICON Management Server

An optional feature that can be enabled on the director or switch through the *Element Manager* application. When enabled, host control and management of the director or switch is provided through an S/390 Parallel Enterprise or zSeries server attached to a director or switch port.

FICON management style

The management style that is most useful when attaching to IBM S/390 Enterprise Servers. *See also* [open systems management style](#); [management style](#).

field-replaceable unit

(FRU) — Assembly removed and replaced in its entirety when any one of its components fails. *See also* [active FRU](#).

firmware

Embedded program code that resides and executes on directors, switches, and hubs.

FLASH memory

Reusable nonvolatile memory that is organized as segments for writing, and as bytes or words for reading. FLASH memory is faster than read-only memory, but slower than random access memory.

Flexport Technology

A Flexport technology switch is delivered at a discount without all the ports enabled. When additional port capacity is required, the remaining ports are enabled (in eight-port increments) through purchase of this feature.

FL_Port

See [fabric loop port](#).

FPM card

See [fiber port module card](#).

F_Port

See [fabric port](#).

frame

A variable-length packet of data that is transmitted in frame relay technology.

FRU

See [field-replaceable unit](#).

full-duplex

The capability to simultaneously communicate in both directions over a single connection, with flow control. *Synonymous with* [bidirectional](#), *contrast with* [half-duplex](#).

FX_Port

A port configuration allowing a port to transition operationally to either an F_Port or an FL_Port. Only the Edge Switch 2/24 supports the configuration of this port type.

gateway

A multi-homed host used to route network traffic from one network to another, and to pass network traffic from one protocol to another.

gateway address

A unique string of numbers (in the format xxx.xx.xxx.xxx) that identifies a gateway on the network.

generic port

(G_Port) — Physical interface on a director that can function either as a fabric port (F_Port) or an expansion port (E_Port) depending on the port type to which it connects.

generic port module card

GPM card. A port card that implements four generic ports (G_Ports) and provides the physical connection point for links to Fibre Channel devices.

gigabit interface converter

GbIC. A removable module that converts an electrical serial data stream to an optical or amplified electrical serial data stream. Contains connector for attaching fiber-optic cable.

GSM card

A generic port (G_Port) module card containing shortwave laser ports for multimode fiber-optic cables.

G_Port

See [generic port](#).

Gx_Port

A port configuration allowing a port to transition operationally to an FL_Port as well as to the port operational states described for a G_Port. Only the Edge Switch 2/24 supports the configuration of this port type.

HAFM application

See [High Availability Fabric Manager application](#).

HAFM server

See [High Availability Fabric Manager server](#).

half-duplex

The capability to communicate in both directions over a single connection, but not simultaneously (except for link control frames). *Contrast with* [half-duplex](#).

hardware log

Record of FRU insertions and removals for a director or switch.

hardware management console

The console runs the Hardware Management Console application (HWMCA), and is the operations and management PC platform for S/390 and zSeries servers.

HBA

See [host bus adapter](#).

heterogeneous fabric

A fabric containing open-fabric-compliant products from various vendors (HP and non-HP).

See also [homogeneous fabric](#).

high availability

A performance feature characterized by hardware component redundancy and hot-swappability (enabling non-disruptive maintenance). High-availability systems maximize system uptime while providing superior reliability, availability, and serviceability.

High Availability Fabric Manager application

(HAFM) — Application that implements the management user interface for HP Fibre Channel switching products and as a launching point for the *Element Manager* application. The application runs locally on the HAFM server or on a remote workstation.

High Availability Fabric Manager server

Notebook computer shipped with a director to run the *HAFM* and *Element Manager* applications.

hop

Data transfer from one fabric node to another node.

homogeneous fabric

A fabric consisting of only HP products. See also [heterogeneous fabric](#).

hop count

The number of hops a unit of information traverses in a fabric.

host bus adapter

(HBA) — Logic card that provides a link between the server and storage subsystem and integrates the operating systems and I/O protocols to ensure interoperability.

hot-swapping

Removing and replacing a device's components while the device continues to operate normally.

H_Port

See [hub port](#).

hub

In Fibre Channel protocol, a device that connects nodes into a logical loop by using a physical star topology. In an Ethernet system, a device used to connect the HAFM server and the directors it manages.

hub port

H_Port. In arbitrated loop devices, a port that uses arbitrated loop protocols. The physical interface that attaches to a loop device, either an end device or another loop interconnect device (hub).

IML

See [initial machine load](#).

inband management

Management of the director or switch through a Fibre Channel connection to a port card. See also [out-of-band management](#).

industry standard architecture

ISA. Bus architecture designed for personal computers (PCs) that use an Intel 80386, 80486, or Pentium microprocessor. ISA buses are 32 bits wide and support multiprocessing.

information message

Software message that indicates to a user that a function is performing normally or has completed normally. See also [error message](#) and [warning message](#).

initial machine load

(IML) — Hardware reset for all installed CTP cards on the director. It does not affect other hardware. It is initiated by pushing the white button on a director's CTP card.

initial program load

(IPL) — Process of initializing the device and causing the operating system to start. Initiated through a menu in the Element Manager, this option performs a hardware reset on the active CTP only.

initial program load configuration

(IPL configuration) — In S/390 mode, information containing default configurations stored in a director or switch's nonvolatile memory. The director or switch loads the file for operation when powered on.

input/output configuration

The collection of channel paths, control units, and I/O devices that attaches to the S/390 or zSeries processor.

input/output configuration program

A program that defines all available I/O devices and channel paths to an IBM S/390 or zSeries processor system. Replaced by the Hardware Configuration Definition Program starting with MVS/ESA Version 4.0.

Institute of Electrical and Electronics Engineers

IEEE. An organization of engineers and technical professionals that promotes the development and application of electronic technology and allied sciences.

interface

(1) A shared boundary between two functional units, defined by functional, signal, or other characteristics. The concept includes the specification of the connection of two devices having different functions. (2) Hardware, software, or both, that link systems, programs, or devices

interface controller

The chip or circuit that translates computer data and commands into a form suitable for use by the hard drive and controls the transfer of data between the buffer and the host.

internet protocol address

(IP address) — Unique string of numbers (in the format xxx.xxx.xxx.xxx) that identifies a device on a network.

interoperability

Ability to communicate, execute programs, or transfer data between various functional units over a network.

interoperability mode

(interop mode) — An operating mode, set through management software, that allows products to operate in homogeneous or heterogeneous fabrics.

interswitch link

(ISL) — Physical expansion port (E_Port) connection between two directors in a fabric.

interswitch link hop

ISL hop. *See* [hop](#).

intranet

A private version of the Internet that provides a cost-effective way to publicize critical information and that provides an interactive communication path for heterogeneous systems. Internal to a specific organizational structure and secured from or disconnected from the global Internet.

IOCDs

A data set that contains an I/O configuration definition built by the IOCP.

IOCP

See [input/output configuration program](#).

IP address

See [internet protocol address](#).

IPL

See [initial program load](#).

ISL

See [interswitch link](#).

jumper cable

Optical cable that provides physical attachment between two devices or between a device and a distribution panel. *See also* [trunk cable](#).

latency

The amount of time it takes for data transmission to pass through a switching device. When used in reference to a Fibre Channel switching device, latency refers to the amount of time elapsed between receipt of a data transmission at a switch's incoming F_Port (from the originating node port) to retransmission of that data at the switch's outgoing F_Port (to the destination N_Port).

LIN

See [link incident](#).

link

Physical connection between two devices on a switched fabric.

link incident

(LIN) — Interruption to a Fibre Channel link due to loss of light or other causes.

link incident alerts

A user notification, such as a graphic symbol in the Element Manager application *Hardware View* that indicates that a link incident has occurred. *See also* [link incident](#).

link incident log

Log, displayed through the *Element Manager* application, that provides a history of Fibre Channel link incidents (with associated port numbers) for an individual director or switch. *See also* [audit log](#), [event log](#), [hardware log](#), and [threshold alert log](#).

load balancing

Ability to evenly distribute traffic over multiple interswitch links within a fabric. Load balancing on HP directors takes place automatically.

logical port address

The port numbering system for a director with the FICON Management Server active.

logical switch number

LSN. A two-digit number used by the I/O configuration program (IOCP) to identify a director or switch.

logical unit number

(LUN) — In Fibre Channel addressing, a logical unit number is a number assigned to a storage device, which, in combination with the storage device's node port's World Wide Name, represents a unique identifier for a logical device on a storage area network.

loop

A loop is a configuration of devices connected to the fabric via a fabric loop port (FL_Port) interface card.

loop initialization primitive

(LIP) — In an arbitrated loop device, a process by which devices connected to hub ports (H_Ports) on the arbitrated loop device notify other devices and the switch of their presence in the loop by sending LIP sequences and subsequent frames through the loop. This process allows linked arbitrated loop devices to perform fabric loop port (FL_Port) arbitration as they link through hub ports.

loop master

In an arbitrated loop device, a reference to the loop master World Wide Name (WWN) field in the Loop View, the loop master is the arbitrated loop device that is responsible for allocating arbitrated loop physical addresses (AL-PAs) on the loop. An arbitrated loop device becomes the loop master through arbitration when there are multiple arbitrated loop devices on the loop. The arbitrated loop device with the lowest WWN becomes the loop master.

loop port

L_Port. *Synonym for* [hub port](#).

loop switches

Loop switches support node loop port (NL_Port) Fibre Channel protocols. Switches sold as loop support but upgradeable to fabric switches recounted as loop switches.

loopback plug

In a fiber optic environment, a type of duplex connector used to wrap the optical output signal of a device directly to the optical input.

loopback test

Test that checks attachment or control unit circuitry, without checking the mechanism itself, by returning the output of the mechanism as input.

LUN

See [logical unit number](#).

MAC address

See [Media Access Control address](#).

maintenance analysis procedure

(MAP) — A set of procedures that guide maintenance personnel through step-by-step instructions for hardware fault isolation, repair, and verification.

maintenance port

Connector on the director where a PC running an ASCII terminal emulator can be attached or a dial-up connection can be made for specialized maintenance support.

managed product

Hardware product that can be managed with the *HAFM* application. For example, the Director 2/64 and the Edge Switch 2/32 are managed products. *See also* [device](#).

Management Information Base

(MIB) — Related set of software objects (variables) containing information about a managed device and accessed via SNMP from a network management station.

Management Services application

Software application that provides back-end product-independent services to the *HAFM* application. Management Services runs only on the HAFM server and cannot be downloaded to remote workstations.

management session

A management session exists when a user logs on to the HAFM server. The *HAFM* application can support multiple concurrent management sessions. The user must specify the network address of the HAFM server at logon time.

management style

In directors or switches, in managed products, a selection between FICON and open systems management style. *See also* [open systems management style](#); [FICON management style](#).

MAP

See [maintenance analysis procedure](#).

Media Access Control address

(MAC) — Hardware address of a node (device) connected to a network.

metropolitan area network

A high-speed communication network designed to link together sites in a metropolitan or campus area, comprised of distances up to 100 kilometers. *Contrast with* [storage area network](#), and [wide area network](#).

MIB

See [Management Information Base](#).

multicast

Delivery of a single transmission to multiple destination N_Ports. Can be one-to-many or many-to-many. All members of the group are identified by one IP address. *See also* [broadcast](#).

multimode optical fiber

A graded-index or step-index optical fiber that allows more than one mode (light path) to propagate. *Contrast with* [singlemode optical fiber](#).

multiswitch fabric

Fibre Channel fabric created by linking more than one director or switching device within a fabric.

name server

Program that translates names from one form into another. For example, the domain name server (DNS) translates domain names into IP addresses.

name server zoning

N_Port access management that allows N_Ports to communicate if and only if they belong to a common name server zone.

network address

Name or address that identifies a managed product on a transmission control protocol/internet protocol (TCP/IP) network. The network address can be either an IP address in dotted-decimal notation (containing four three-digit octets in the format xxx.xxx.xxx.xxx), or a domain name (as administered on a customer network).

network-attached storage

NAS. Storage connected directly to the network, through a processor and its own operating system. Lacks the processor power to run centralized, shared applications.

never principal

The setting that prevents the product from becoming the principal switch for a fabric.

nickname

Alternate name assigned to a World Wide Name for a node or director in the fabric.

NL_Port

See [node loop port](#).

node

In Fibre Channel terminology, node refers to an end device (server or storage device) that is or can be connected to a switched fabric.

node loop port

NL_Port. A physical interface within an end device (node) that participates in a loop containing one or more fabric loop ports (FL_Ports) or other NL_Ports. *See also* [bridge port](#); [expansion port](#); [fabric port](#); [fabric loop port](#); [generic port](#); [hub port](#); [node port](#); [segmented E_Port](#)

node port

(N_Port) — Physical interface within an end device that can connect to a fabric port (F_Port) on a switched fabric or directly to another N_Port (in point-to-point communications).

node port identifier

(N_Port ID) — In Fibre Channel protocol, a unique address identifier by which an N_Port is uniquely known. It consists of a domain (most significant byte), an area, and a port, each 1 byte long. The N_Port ID is used in the source identifier (S_ID) and destination identifier (D_ID) fields of a Fibre Channel frame.

nondisruptive maintenance

Ability to service FRUs (including maintenance, installation, removal and replacement) while normal operations continue without interruption. *See also* [concurrent maintenance](#).

N_Port

See [node port](#).

offline

Referring to data stored on a medium, such as tape or even paper, that is not available immediately to the user.

offline diagnostics

Diagnostics that only operate in stand alone mode. User operations cannot take place with offline diagnostics running.

offline sequence

(OLS) — Sequence sent by the transmitting port to indicate that it is attempting to initialize a link and has detected a problem in doing so.

offline state

When the switch or director is in the offline state, all the installed ports are offline. The ports transmit an offline sequence (OLS) and they cannot accept a login connection from an attached device. *See also* [online state](#).

OLS

See [offline sequence](#).

online state

When the switch or director is in the online state, all of the unblocked ports are allowed to log in to the fabric and begin communicating. Devices can connect to the switch or director if the port is not blocked and can communicate with another attached device if both devices are in the same zone, or if the default zone is enabled. *See also* [offline state](#).

Open Systems Architecture

OSI. A model that represents a network as a hierarchical structure of functional layers. Each layer provides a set of functions that can be accessed and used by the layer above. Layers are independent, in that implementation of a layer can be changed without affecting other layers.

open-systems interconnection

A model that represents a network as a hierarchical structure of functional layers. Each layer provides a set of functions that can be accessed and used by the layer above. Layers are independent, and the implementation of a layer can be changed without affecting other layers.

Open Systems Management Server

An optional feature that can be enabled on the director or switch through the *Element Manager* application. When enabled, host control and management of the director or switch are provided through an open systems interconnection (OSI) device attached to a director or switch port.

open systems management style

The mode that is used for open fabrics. See also [management style](#); [FICON management style](#).

open-systems mode

The management mode used to specify director or switch port connectivity when the product is attached to other HP products or OSI-compliant devices as part of an open fabric.

Open Trunking

Open Trunking is a licensed optional feature that enables load balancing of traffic flows. Open Trunking monitors the average speed of data traffic through a flow. In the event of traffic congestion, or if traffic on an ISL is disproportionate, a traffic flow is rerouted to a less congested ISL. *See also* [interswitch link](#).

operating state (director)

The operating states are described as follows:

- **Online** - when the director is set online, an attached device can log in to the director if the port is not blocked. Attached devices can communicate with each other if they are configured in the same zone.
- **Offline** - when the director is set offline, all ports are set offline. The director transmits the offline sequence (OLS) to attached devices, and the devices cannot log in to the director.

operating state (port)

Valid states are:

- Online, offline, or testing.
- Beaconing.
- Invalid attachment.
- Link incident or link reset.
- No light, not operational, or port failure.

Operating System/390

(OS/390) — An integrated, open-enterprise server operating system developed by IBM that incorporates a leading-edge and open communications server, distributed data and file services, parallel Sysplex support, object-oriented programming, distributed computing environment, and open application interfaces.

optical cable

Fiber, multiple fibers, or a fiber bundle in a structure built to meet optical, mechanical, and environmental specifications. *See also* [jumper cable](#), [optical cable assembly](#), and [trunk cable](#).

optical cable assembly

Optical cable that is connector-terminated. *See also* [jumper cable](#) and [optical cable](#).

optical fiber connector

Hardware component that transfers optical power between two optical fibers or bundles and is designed to be repeatedly connected and disconnected.

out-of-band management

Transmission of management information using frequencies or channels (Ethernet) other than those routinely used for information transfer (Fibre Channel). *See also* [inband management](#)

packet

Logical unit of information (usually in the form of a data frame) transmitted on a network. It contains a header (with all relevant addressing and timing information), the actual data, and a trailer (which contains the error checking function, usually in the form of a cyclic redundancy check).

panel

A logical component of the interface window. Typically, a heading and/or frame marks the panel as an individual entity of the window. Size and shape of the panel and its data depend upon the purpose of the panel and may or may not be modified.

password

Unique string of characters known to the computer system and to a user who must specify it to gain full or limited access to a system and to the information stored within it.

path

In a network, any route between any two ports.

persistent binding

A form of server-level access control that uses configuration information to bind a server to a specific Fibre Channel storage volume (or logical device) using a unit number. *See also* [access control](#)

point-to-point

A Fibre Channel protocol topology that provides a single, direct connection between two communication ports. The director or switch supports only point-to-point topology. *See also* [arbitrated loop](#).

port

Receptacle on a device to which a cable leading to another device can be attached.

port address name

A user-defined symbolic name of 24 characters or less that identifies a particular port address.

port authorization

Feature of the password definition function that allows an administrator to extend operator-level passwords to specific port addresses for each director or switch definition managed by a personal computer (PC). Port authorization affects only operator-level actions for active and saved matrices.

port binding

Configuring a specific switch or director port to communicate exclusively with an attached device.

port card

Field-replaceable hardware component that provides the port connections for fiber cables and performs specific device-dependent logic functions.

port card map

Map showing numbers assigned to each port card by card slot.

port name

Name that the user assigns to a particular port through the Element Manager.

POST

See [power-on self test](#).

power-on self test

(POST) — Series of self-tests executed each time the unit is booted or reset.

preferred domain ID

Domain ID that a director or switch is assigned by the principal switch in a switched fabric. The preferred domain ID becomes the active domain ID except when configured otherwise by the user.

principal switch

The director or switch that allocates domain IDs to itself and to all other switches in a fabric. There is always one principal switch in a fabric. If a switch is not connected to any other switches, it acts as its own principal switch.

private device

A loop device that cannot transmit a fabric login command (FLOGI) command to a switch or director, nor communicate with fabric-attached devices. Contrast with [public device](#).

private loop

A private arbitrated loop is not connected to a switched fabric. All devices attached to the loop can only communicate with each other. *Contrast with* [public loop](#).

product name

User-configurable identifier assigned to a managed product. Typically, this name is stored on the product itself. For the director, the product name can also be accessed by an SNMP manager as the system name.

Product Status Log

A log recorded at the EFC Manager application that displays an entry when the status of a director or switch changes. The log reflects the previous status and current status of a managed product, and indicates the instance of a *Element Manager* application that should be opened to investigate a problem.

prohibited port connection

In S/390 operating mode, an attribute that removes dynamic connectivity capability.

protective plug

In a fiber-optic environment, a type of duplex connector (or cover) that provides physical protection (*D*).

protocol

(1) Set of semantic and syntactic rules that determines the behavior of functional units in achieving communication. (2) In systems network architecture, the meanings of and sequencing rules for requests and responses for managing the network, transferring data, and synchronizing network component states. (3) A specification for the format and relative timing of data exchanged between communicating devices.

public device

A loop device that can transmit a fabric login command (FLOGI) to a switch, receive acknowledgement from the switch's login server, register with the switch's name server, and communicate with fabric-attached devices. Public devices communicate with fabric-attached devices through the switch's bridge port (B_Port) connection to a director or switch. *Contrast with* [private device](#).

public loop

A public loop is connected to a switched fabric (through the switch bridge port (B_Port)), and the switch has an active embedded fabric loop port (FL_Port) that is user transparent. All devices attached to the loop can communicate with each other, and public devices attached to the loop can communicate with fabric-attached devices. *Contrast with* [private loop](#).

R_A_TOV

See [resource allocation time-out value](#).

redundancy

Performance characteristic of a system or product whose integral components are backed up by identical components to which operations will automatically failover in the event of a component failure. Redundancy is a vital characteristic of virtually all high-availability (24 hours per day, seven days per week) computer systems and networks.

remote access link

Connection to a device or program on a computer network via a (geographically) remote workstation.

remote computer running client software

Workstation, such as a personal computer (PC) or UNIX workstation, running HAFM and Element Manager client application software that can access the server platform over a local area network (LAN) connection.

rerouting delay

An option that ensures that frames are delivered in order through the fabric to their destination.

remote notification

A process by which a system is able to inform remote users and/or workstations of certain classes of events that occur on the system. E-mail notification and the configuration of SNMP trap recipients are two examples of remote notification programs that can be implemented on director-class switches.

remote user workstation

Workstation, such as a PC, using the *HAFM* and *Element Manager* applications, which can access the HAFM server over a LAN connection.

resource allocation time-out value

(R_A_TOV) — User-specified value used to time out operations that depend on the maximum possible time that a frame could be delayed in a fabric and still be delivered.

ring topology

A logically circular, unidirectional transmission path without defined ends, in which control is distributed or centralized (*D*). *See also* [token ring](#).

RFI

Acronym for radio frequency interface.

RFI shield

Radio frequency interface shield (S/390 mode only).

RS-232

The Electronic Industry Association (EIA)-recommended specification for asynchronous serial interfaces between computers and communications equipment. It specifies both the number of pins and type of connection, but does not specify the electrical signals.

SAN

See [storage area network](#).

SANTegrity Binding

Purchase and enablement of this feature enhances security in SANs that contain a large and mixed group of fabrics and attached devices.

SBAR

See [serial crossbar assembly](#).

SC duplex connector

An optical fiber connector that terminates jumper cables in one housing and provides physical attachment to a subscriber connector (SC) duplex receptacle. SC duplex connectors provide optical port connectivity for the ED-5000 Director and ES-1000 switch. *Contrast with* [gigabit interface converter](#) *and* [small form factor pluggable transceivers](#).

scalable

Refers to how well a system can adapt to increased demands. For example, a scalable network system could start with just a few nodes but easily expands to thousands of nodes. Scalability is important because it allows the user to invest in a system with confidence that a business will not outgrow it. Refers to anything whose size can be changed.

segment

A fabric segments when one or more switches cannot join the fabric because of various reasons. The switch or switches remain as separate fabrics.

segmented E_Port

Expansion port (E_Port) that has ceased to function as an E_Port within a multiswitch fabric due to an incompatibility between the fabrics that it joins. *See also* [expansion port](#).

serial crossbar assembly

(SBAR) — Responsible for Fibre Channel frame transmission from any director port to any other director port. Connections are established without software intervention.

serial port

A full-duplex channel that sends and receives data at the same time. It consists of three wires: two that move data one bit at a time in opposite directions, and a third wire that is a common signal ground wire.

Session Log

A log recorded at the EFC Manager application that displays a session (login and logout) history for the EFC Server, including the date and time, user name, and network address of each session.

SFF

(small form factor) — A type of Fibre Channel connector). *See also* [fiber port module card](#).

shared mode

If a director or switch is in shared mode, all devices on the loop share the 100MB bandwidth available on the loop. In shared mode, only one end device can communicate with another device through the fabric loop port (FL_Port) on the director or switch.

Server Platform

A server platform shipped with the product or supplied by the customer for the purpose of running the HAFM and Element Manager server applications.

simple mail transfer protocol

SMTP. A transmission control protocol/Internet protocol (TCP/IP) protocol that allows the user to create, send, and receive text messages. SMTP protocols specify how messages are passed across a link from one system to another. They do not specify how the mail application accepts, presents, or stores the mail.

simple network management protocol

(SNMP) — A protocol that specifies a mechanism for network management that is complete, yet simple. Information is exchanged between agents, which are the devices on the network being managed, and managers, which are the devices on the network through which the management is done.

simple network management protocol version 1

SNMP v1. The original standard for SNMP is now referred to as SNMP v1.

simple network management protocol version 2

SNMP v2. The second version of the SNMP standard. This version expands the functionality of SNMP and broadens its ability to include OSI-based, as well as TCP/IP-based, networks as specified in RFC 1441 through 1452.

singlemode optical fiber

An optical fiber that allows one wavelength-dependent mode (light path) to propagate. *Contrast with* [multimode optical fiber](#).

small form factor pluggable transceiver

A laser-driven small form factor optical transceiver used for a wide range of networking applications requiring high data rates. SFP transceivers provide port connectivity for Intrepid-series directors and Sphereon-series switches. *Contrast with* [gigabit interface converter](#) and [SC duplex connector](#).

SNMP

See [simple network management protocol](#).

SNMP community

Also known as SNMP community string. An SNMP community is a cluster of managed products (in SNMP terminology, hosts) to which a server or managed product running the SNMP agent belongs.

SNMP community name

The name assigned to a given SNMP community. Queries from an SNMP management station to a device running an SNMP agent will only elicit a response if those queries are addressed with the correct SNMP community name.

SNMP station

SNMP management station. An SNMP workstation personal computer (PC) used to oversee the SNMP network.

small computer system interface

SCSI. An interface standard that enables computers to communicate with peripherals connected to them. Commonly used in enterprise computing and in Apple Macintosh systems. Usually pronounced as “scuzzy.” The equivalent interface in most personal computers is enhanced integrated drive electronics (EIDE).

small form factor pluggable transceivers

SFP transceivers. Laser-based optical transceivers for a wide range of networking applications requiring high data rates. The transceivers, which are designed for increased densities, performance, and reduced power, are well-suited for Fibre Channel applications.

SSP

See [system services processor](#).

static random access memory

SRAM. SRAM is microprocessor-cache random access memory. It is built internal to the microprocessor or on external chips. SRAM is fast, but relatively expensive. *Contrast with* [dynamic random access memory](#).

storage area network

(SAN) — A high-performance data communications environment that interconnects computing and storage resources so that the resources can be effectively shared and consolidated.

stored addresses

In FICON management style, a method for configuring addresses.

subnet

A portion of a network that shares a common address component. On transmission control protocol/Internet protocol (TCP/IP) networks, subnets are defined as all devices whose IP addresses have the same prefix. Dividing a network into subnets is useful for both security and performance reasons. IP networks are divided using a subnet mask.

subnet mask

Used by a computer to determine whether another computer with which it needs to communicate is located on a local or remote network. The network mask depends upon the class of networks to which the computer is connecting. The mask indicates which digits to look at in a longer network address and allows the router to avoid handling the entire address.

switchover

Changing a backup FRU to the active state, and the active FRU to the backup state.

switch binding

A feature that restricts the product from allowing connections with the devices that are not listed on the Switch Binding Membership List. Switch Binding is available only if the SANtegrity Binding feature is installed.

switch priority

A value configured for each switch in a fabric that determines the relative likelihood of the switch becoming the fabric's principal switch. A low value indicates a high likelihood of becoming the principal switch. The highest priority is **1**, the lowest priority is **225**. A value of **225** indicates the switch is not capable of acting as the principal switch. A value **0** is illegal.

switch binding membership list

SBML. If switch binding is enabled, a list of devices with which the product is allowed to make connections.

switch priority

Value configured into each switch in a fabric that determines its relative likelihood of becoming the fabric's principal switch.

switched fabric

One of three topologies offered by the Fibre Channel protocol. The topology is structured as a network of one or more interconnected switch elements. Each element connects device N_Ports and is capable of routing (switching) Fibre Channel frames, using destination ID information accompanying data frames. *See also* [point-to-point](#) and [switched fabric](#).

switched mode

If the arbitrated loop device is in switched mode, each pair of communicating ports on the arbitrated loop device can share the 100MB bandwidth. In switched mode, up to three pairs of loop devices can communicate with each other simultaneously. Or, a public device on the loop can communicate with another device on the fabric while up to two pairs of loop devices can communicate simultaneously.

system automation for operating system 390

(SA OS/390) — IBM-licensed software that provides System/390 Parallel Sysplex management, automation capabilities, and integrated systems and network management. SA OS/390 manages host, remote processor, and I/O operations. SA OS/390 integrates the functions of Automated Operations Control for MVS, ESCON Manager, and Target System Control Facility.

system services processor

(SSP) Controls the RS-232 maintenance port, the Ethernet port, and the operator panel of a Fibre Channel director.

TCP/IP

See [transmission control protocol/internet protocol](#).

Telecommunications Industry Association

TIA. A member organization of the Electronic Industries Association (EIA), TIA is the trade group representing the communications and information technology industries. *See also* [Electronic Industries Association](#).

threshold alert log

Log, displayed through the *Element Manager* application, that provides details of threshold alert notifications for an individual director or switch. The log displays the date and time an alert occurred and details about the alert as configured for the product. *See also* [audit log](#), [event log](#), [hardware log](#), and [link incident log](#).

token

A sequence of bits passed from one device to another on a token ring network that signifies permission to transmit over the network. The token consists of a starting delimiter, access control field, and end delimiter. If a device has data to transmit, it appends the data to the token.

token ring

A local area network (LAN) configuration where devices attach to a network cable in a closed path or ring. A token (unique sequence of bits) circulates on the ring to allow devices to access the LAN for data transmission (*D*). *See also* [ring topology](#).

token ring controller adapter card

TKRG. The circuit card that provides a port to connect a director or switch to a 4/16 Mbps token ring local area network (LAN).

topology

Logical and/or physical arrangement of stations on a network.

transceiver modules

Transceiver modules come in longwave, extra longwave, or shortwave laser versions, providing a single fiber connection.

transfer rate

The speed with which data can be transmitted from one device to another. Data rates are often measures in megabits (Mbps) or megabytes (MBps) per second, or gigabits per second (Gbps) or gigabytes per second (GBps).

trap recipient

In SNMP, a network management station that receives messages for configured events that occur at a managed director or switch.

Underwriters Laboratories

UL. A laboratory organization accredited by the Occupational Safety and Health Administration and authorized to certify products for use in the home and workplace (*D*).

upper level protocol

A protocol that maps to and runs on top of the Fibre Channel through the FC-4 layer. Examples of upper level protocols include Internet protocol (IP) and small computer system interface (SCSI).

topology

Logical and/or physical arrangement of stations on a network.

transmission control protocol/internet protocol

(TCP/IP) A suite of communication protocols used to connect host systems to the Internet. *See also* [network address](#).

trap

Unsolicited notification of an event originating from an SNMP managed device and directed to an SNMP network management station.

trap host

SNMP management workstation that is configured to receive traps.

trap recipient

In simple network management protocol (SNMP), a network management station that receives messages through SNMP for specific events that occur on the arbitrated loop device.

trunk cable

Cable consisting of multiple fiber pairs that do not directly attach to an active device. This cable usually exists between distribution panels. *See also* [optical cable](#) and [jumper cable](#).

unblocked connection

In a director or switch, the absence of the blocked attribute for a specific port. *See also* [blocked connection](#), [connectivity attribute](#), [dynamic connection](#), and [dynamic connectivity](#).

unblocked port

Devices attached to an unblocked port can log in to the director and communicate with devices attached to any other unblocked port.

unicast

Communication between a single sender and a single receiver over a network. Compare to *multicast* and *anycast* (communication between any sender and the nearest of a group of receivers). *See also* [multicast](#).

universal port module card

Each universal port module (UPM) card provides four Fibre Channel connections through duplex small form factor (SFF) pluggable fiber optic transceivers. UPM cards allow 1 or 2 gigabits per second enabled.

UPM card

See [universal port module card](#).

upper level protocol

ULP. Protocols that map to and run on top of the Fibre Channel FC-4 layer. ULPs include Internet protocol (IP) and small computer system interface (SCSI).

user datagram protocol

UDP. A connectionless protocol that runs on top of Internet protocol (IP) networks. User datagram protocol/Internet protocol (UDP/IP) offers very few error recovery services, instead providing a direct way to send and receive datagrams over an IP network. UDP/IP is primarily used for broadcasting messages over an entire network.

vital product data

(VPD) — System-level data stored by the backplane in the electrically erasable programmable read-only memory. This data includes serial numbers and identifies the manufacturer.

VPD

See [vital product data](#).

warning message

Software message that indicates a possible error was detected. See also [error message](#) and [information message](#).

well-known address

A set of address identifiers defined in the Fibre Channel Physical and Signaling Interface specification that access global server functions such as a login server, management server, or name server.

wide area network

A network that covers a larger geographical area than a LAN and where telecommunications links are typically leased through a common carrier. *Contrast with* [metropolitan area network](#), and [storage area network](#).

wrap plug

See [loopback plug](#).

wrap test

A test that checks attachment or control unit circuitry, without checking the mechanism itself, by returning the output of the mechanism as input. A wrap test can transmit a specific character pattern through a system and compare the pattern received with the pattern transmitted.

World Wide Name

(WWN) — Eight-byte address that uniquely identifies a switch, or a node (end device) on global networks.

write authorization

Permission for an simple network management protocol (SNMP) management station with the proper community name to modify writable management information base (MIB) variables.

WWN

See [World Wide Name](#).

zone

Set of devices that can access one another. All connected devices may be configured into one or more zones. Devices in the same zone can see each other. Devices that occupy different zones cannot see each other.

zone member

Specification of a device to be included in a zone. A zone member can be identified by the port number of the director to which it is attached or by its World Wide Name. In multiswitch fabrics, identification of end-devices/nodes by World Wide Name is preferable.

zone set

See also [zone](#).

zoning

Grouping of several devices by function or by location. All devices connected to a connectivity product, such as the director, may be configured into one or more zones. *See also* [zone](#).